

## SEQUENCE LISTING

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<120> Polymorphisms in the human CYP3A4 and CYP3A7 genes and  
their use in diagnostic and therapeutic applications

<130> D 2145 PCT

<140> US 10/070,587

<141> 2002-03-08

<150> EP 99 11 8120.7

<151> 1999-09-10

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<170> PatentIn Ver. 2.1

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<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: artificial

<400> 126  
tactggagag agc 13

<210> 127  
<211> 13  
<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: artificial

<400> 127

gctctctcca gta

13

<210> 128

<211> 249

<212> DNA

<213> Homo sapiens

<220>

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<222> (1)..(115)

<223>

<220>

<221> exon

<222> (116)..(168)

<223>

<220>

<221> intron

<222> (169)..(249)

<223>

<220>

<221> CDS

<222> (116)..(166)

<223>

<400> 128

cctctaactg ccagcaagtc tgatttcatt ggcttcgact gttttcatcc caattagagg 60

caggggtaag tacattaaaa ataataatca aatattatgt tgtttctcct cccag grc 118  
Xaa  
1

ttt tgt atg ttt gac atg gaa tgt cat aaa aag tat gga aaa gtg tgg 166  
Phe Cys Met Phe Asp Met Glu Cys His Lys Lys Tyr Gly Lys Val Trp  
5 10 15

gggtgagtat tctggaaact tccattggat agacttggtt ctatgatgag tttacccac 226

tgacagagg acagtctcag ccc 249

<210> 129

<211> 17

<212> PRT

<213> Homo sapiens

<220>

<221> MISC\_FEATURE

<222> (1)..(1)

<223> Xaa is Gly or Asp

<400> 129

Xaa	Phe	Cys	Met	Phe	Asp	Met	Glu	Cys	His	Lys	Lys	Tyr	Gly	Lys	Val
1				5					10					15	

Trp

<210> 130

<211> 293

<212> DNA

<213> Homo sapiens

<220>

<221> intron

<222> (1)..(77)

<223>

<220>

<221> exon

<222> (78)..(177)

<223>

<220>

<221> intron

<222> (178)..(293)

<223>

<220>

<221> CDS

<222> (79)..(177)

<223>

<400> 130

agtctggcct cctgggttgg gctccagctg tagaataagg ctgttgatgt ttaatcaact 60

ctgttttttt	cacacagc	ttt	tat	gat	ggg	caa	cag	cct	gtg	ctg	gct	atc	111
		Phe	Tyr	Asp	Gly	Gln	Gln	Pro	Val	Leu	Ala	Ile	
		1				5					10		

aca	gat	cct	gac	atg	atc	aaa	aca	gtg	cta	gtg	aaa	gaa	tgt	tat	tct	159
Thr	Asp	Pro	Asp	Met	Ile	Lys	Thr	Val	Leu	Val	Lys	Glu	Cys	Tyr	Ser	
			15					20					25			

gtc	ttc	aca	aac	cgg	agg	gtaagcattc	atgtgttgaa	attaaaatac	207
Val	Phe	Thr	Asn	Arg	Arg				
			30						

tgattgatta aatttatatt ttgaaattct tatatatattca tagacagttg cctaaaaaat 267

gtccaggaag gttccacgtc cacttc 293

<210> 131

<211> 33  
 <212> PRT  
 <213> Homo sapiens

<400> 131  
 Phe Tyr Asp Gly Gln Gln Pro Val Leu Ala Ile Thr Asp Pro Asp Met  
   1                  5                  10                  15  
 Ile Lys Thr Val Leu Val Lys Glu Cys Tyr Ser Val Phe Thr Asn Arg  
           20                  25                  30

Arg

<210> 132  
 <211> 236  
 <212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (1)..(61)  
 <223>

<220>  
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 <222> (62)..(175)  
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<220>  
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 <222> (176)..(236)  
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<220>  
 <221> CDS  
 <222> (62)..(175)  
 <223>

<400> 132  
 ctacaacat ggagacctcc acaactgatg taggacaaaa tgtttctgct ttgaactcta 60  
 g cct ttt ggt cca gtg gga ttt atg aaa agt gcc atc tct ata gct gag 109  
   Pro Phe Gly Pro Val Gly Phe Met Lys Ser Ala Ile Ser Ile Ala Glu  
     1                  5                  10                  15  
 gat gaa gaa tgg aag aga tta cga tca ttg ctg tct cca acc ttc acc 157  
 Asp Glu Glu Trp Lys Arg Leu Arg Ser Leu Leu Ser Pro Thr Phe Thr  
           20                  25                  30  
 agt gga aaa ctc aag gag gtatgaaaat aacatgagtt ttaataagaa 205  
 Ser Gly Lys Leu Lys Glu  
           35  
 acttaaagaa tgaatctggt ggggacaggt a 236

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<400> 134
gtctgtcttg actggacatg tggctttcct gatgcacgca tagaggaagg atggtaaaaa 60

ggtgctgatt ttaattttcc acatctttct ccactcagc gtc ttt ggg gcc tac      114
                               Val Phe Gly Ala Tyr
                               1                               5

agc atg gat gtg atc act agc aca tca ttt gga gtg aac atc gac tct      162
Ser Met Asp Val Ile Thr Ser Thr Ser Phe Gly Val Asn Ile Asp Ser
                               10                               20

ctc aac aat cca caa gac ccc ttt gtg gaa aac acc aag aag ctt tta      210
Leu Asn Asn Pro Gln Asp Pro Phe Val Glu Asn Thr Lys Lys Leu Leu
                               25                               30                               35

aga ttt gat ttt ttg gat cca ttc ttt ctc tca ata agtatgtgga      256
Arg Phe Asp Phe Leu Asp Pro Phe Phe Leu Ser Ile

```

45

393

•

Ile

112

His Arg Val Asp Phe Leu Gln Leu Met Ile

```

                        1             5             10
gac tct cag aat tca aaa gaa act gag tcc cac aaa ggtaaccaga      158
Asp Ser Gln Asn Ser Lys Glu Thr Glu Ser His Lys
                        15             20

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gtgtttctga gggctacttg tggggcactc agaggggaagg ccttgttctg aaaatgtgca 218
ggaagtattc caggatgatg ag                                           240

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<210> 137
<211> 22
<212> PRT
<213> Homo sapiens

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<400> 137
His Arg Val Asp Phe Leu Gln Leu Met Ile Asp Ser Gln Asn Ser Lys
  1             5             10             15
Glu Thr Glu Ser His Lys
                20

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<210> 138
<211> 399
<212> DNA
<213> Homo sapiens

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<220>
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<222> (1) .. (111)
<223>

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<220>
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<222> (112) .. (338)
<223>

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<220>
<221> intron
<222> (339) .. (399)
<223>

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<220>
<221> CDS
<222> (112) .. (336)
<223>

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<400> 138
ccagtatgag ttgttctctg gaactttctaa cagttcaaca gtactacatg gactgagtta 60
aaagttaatt caaaaatctc aatttatcca aatctgtttc tttcttttca g gca cca 117
                                           Ala Pro
                                           1

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ccc acc tat gat act gtg cta cag atg gag tat ctt gac atg gtg gtg 165
Pro Thr Tyr Asp Thr Val Leu Gln Met Glu Tyr Leu Asp Met Val Val

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5	10	15	
aat gaa acg ctc aga tta ttc cca att gct atg aga ctt gag agg gtc			213
Asn Glu Thr Leu Arg Leu Phe Pro Ile Ala Met Arg Leu Glu Arg Val			
20	25	30	
tgc aaa aaa gat gtt gag atc aat ggg atg ttc att ccc aaa ggg tgg			261
Cys Lys Lys Asp Val Glu Ile Asn Gly Met Phe Ile Pro Lys Gly Trp			
35	40	45	50
gtg gtg atg att cca agc tat gct ctt cac cgt gac cca aag tac tgg			309
Val Val Met Ile Pro Ser Tyr Ala Leu His Arg Asp Pro Lys Tyr Trp			
55	60	65	
asa gag cct gag aag ttc ctc cct gaa aggtaggagg cccctgggaa			356
Xaa Glu Pro Glu Lys Phe Leu Pro Glu			
70	75		
gggagccctc cctgaaccag cctggttcaa gcatattctg cct			399

&lt;210&gt; 139

&lt;211&gt; 75

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; MISC\_FEATURE

&lt;222&gt; (67)..(67)

&lt;223&gt; Xaa is Thr or Arg

&lt;400&gt; 139

Ala Pro Pro Thr Tyr Asp Thr Val Leu Gln Met Glu Tyr Leu Asp Met
1 5 10 15

Val Val Asn Glu Thr Leu Arg Leu Phe Pro Ile Ala Met Arg Leu Glu
20 25 30

Arg Val Cys Lys Lys Asp Val Glu Ile Asn Gly Met Phe Ile Pro Lys
35 40 45

Gly Trp Val Val Met Ile Pro Ser Tyr Ala Leu His Arg Asp Pro Lys
50 55 60

Tyr Trp Xaa Glu Pro Glu Lys Phe Leu Pro Glu
65 70 75

&lt;210&gt; 140

&lt;211&gt; 21

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: artificial

<400> 140  
 ccagtatgag ttgttctctg g 21

<210> 141  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: artificial

<400> 141  
 aggcagaata tgcttgaacc aggc 24

<210> 142  
 <211> 26  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: artificial  
 sequence

<400> 142  
 gaagtggacg tggaaccttc ctggac 26

<210> 143  
 <211> 304  
 <212> DNA  
 <213> Homo sapiens

<400> 143  
 agtctggctt cctgggttgg gctccagctg tagaataagg ctggtgatgt ttaatcaact 60  
 ctgttttttt cacacagctt ttatgatggt caacagcctg tgctggctat cacagatcct 120  
 gacatgatca aaacagtgct agtgaaagaa tgttattctg tcttcacaaa cgggagggta 180  
 agcattcatg tgttgaaatt aaaatactga ttgattaaat ttatatattg aaattcttat 240  
 atattcatag acagttgcct aaaaaatgtc caggaagggt ccaogtccac ttcatactgt 300  
 cccc 304

<210> 144  
 <211> 236  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (62)..(175)

<220>  
 <221> intron  
 <222> (1)..(61)

<220>  
 <221> intron  
 <222> (176)..(236)

<220>  
 <221> exon  
 <222> (62)..(175)

<400> 144  
 ctacaaccat ggagacctcc acaactgatg taggacaaaa tgtttctgct ttgaactcta 60  
 g cct ttt ggt cca gtg gga ttt atg aaa agt gcc atc tct ata gct gag 109  
 Pro Phe Gly Pro Val Gly Phe Met Lys Ser Ala Ile Ser Ile Ala Glu  
 1 5 10 15  
 gat gaa gaa tgg aag aga tta caa tca ttg ctg tct cca acc ttc acc 157  
 Asp Glu Glu Trp Lys Arg Leu Gln Ser Leu Leu Ser Pro Thr Phe Thr  
 20 25 30  
 agt gga aaa ctc aag gag gtatgaaaat aacatgagtt ttaataagaa 205  
 Ser Gly Lys Leu Lys Glu  
 35  
 acttaaagaa tgaatctggt ggggacaggt a 236

<210> 145  
 <211> 38  
 <212> PRT  
 <213> Homo sapiens

<400> 145  
 Pro Phe Gly Pro Val Gly Phe Met Lys Ser Ala Ile Ser Ile Ala Glu  
 1 5 10 15  
 Asp Glu Glu Trp Lys Arg Leu Gln Ser Leu Leu Ser Pro Thr Phe Thr  
 20 25 30  
 Ser Gly Lys Leu Lys Glu  
 35

<210> 146  
 <211> 379  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (188)..(274)

<400> 146  
 ccctttccaa ggggtagtcc actgaatttg agctgcctaa aaatgggtctt ttatctttat 60

gtacagaaaa cacatcacia aattcattat aaaatgtcac ttactgctcc atgctgggga 120  
aagccatgtc cttctgggac tagagtctgc acatttaact atgggtggtg ttgtgttttg 180  
tgcttag atg gtc cct atc att gcc cag tat gga gat gtg ttg gtg aga 229  
Met Val Pro Ile Ile Ala Gln Tyr Gly Asp Val Leu Val Arg  
1 5 10  
aat ctg agg cgg gaa gca gag aca ggc aag cct atc acc ttg aaa 274  
Asn Leu Arg Arg Glu Ala Glu Thr Gly Lys Pro Ile Thr Leu Lys  
15 20 25  
gagtaagtag aagcgcagcc atggggttct gagctgtcat gaaccctcc agctgcctgc 334  
catggagctg atattcctgc tgttgggtta ttccagtgc cagac 379

<210> 147  
<211> 29  
<212> PRT  
<213> Homo sapiens

<400> 147  
Met Val Pro Ile Ile Ala Gln Tyr Gly Asp Val Leu Val Arg Asn Leu  
1 5 10 15  
Arg Arg Glu Ala Glu Thr Gly Lys Pro Ile Thr Leu Lys  
20 25

<210> 148  
<211> 379  
<212> DNA  
<213> Homo sapiens

<220>  
<221> CDS  
<222> (188)..(274)

<400> 148  
ccctttccaa ggggtagtcc actgaatttg agctgcctaa aaatggtctt ttatctttat 60  
gtacagaaaa cacatcacia aattcattat aaaatgtcac ttactgctcc atgctgggga 120  
aagccatgtc cttctgggac tagagtctgc acatttaact atgggtggtg ttgtgttttg 180  
tgcttag atg gtc cct atc att gcc cag tat gga gat gtg ttg gtg aga 229  
Met Val Pro Ile Ile Ala Gln Tyr Gly Asp Val Leu Val Arg  
1 5 10  
aat ctg agg cgg gaa gca gag aca ggc aag cct gtc acc ttg aaa 274  
Asn Leu Arg Arg Glu Ala Glu Thr Gly Lys Pro Val Thr Leu Lys  
15 20 25  
cagtaagtag aagcgcagcc atggggttct gagctgtcat gaaccctcc agctgcctgc 334  
catggagctg atattcctgc tgttgggtta ttccagtgc cagac 379

<210> 149  
 <211> 29  
 <212> PRT  
 <213> Homo sapiens

<400> 149  
 Met Val Pro Ile Ile Ala Gln Tyr Gly Asp Val Leu Val Arg Asn Leu  
           1                          5                          10                          15  
 Arg Arg Glu Ala Glu Thr Gly Lys Pro Val Thr Leu Lys  
                           20                          25

<210> 150  
 <211> 379  
 <212> DNA  
 <213> Homo sapiens

<400> 150  
 ccctttccaa ggggtagtcc actgaatttg agctgcctaa aaatgggtctt ttatctttat 60  
 gtacagaaaa cacatcacia aattcattat aaaatgtcac ttactgctcc atgctgggga 120  
 aagccatgtc cttctgggac tagagtctgc acatttaact atgggtggtg ttgtgttttg 180  
 tgcttagatg gtccctatca ttgccagta tggagatgtg ttggtgagaa atctgaggcg 240  
 ggaagcagag acaggcaagc ctgtcacctt gaaagagtaa gtagaagcgc agctatgggg 300  
 ttctgagctg tcatgaaccc ctccagctgc ctgccatgga gctgatattc ctgctgttgg 360  
 gttattccag tgaccagac 379

<210> 151  
 <211> 379  
 <212> DNA  
 <213> Homo sapiens

<400> 151  
 ccctttccaa ggggtagtcc actgaatttg agctgcctaa aaatgggtctt ttatctttat 60  
 gtacagaaaa cacatcacia aattcattat aaaatgtcac ttactgctcc atgctgggga 120  
 aagccatgtc cttctgggac tagagtctgc acatttaact atgggtggtg ttgtgttttg 180  
 tgcttagatg gtccctatca ttgccagta tggagatgtg ttggtgagaa atctgaggcg 240  
 ggaagcagag acaggcaagc ctgtcacctt gaaagagtaa gtagaagcgc agccatgggt 300  
 ttctgagctg tcatgaaccc ctccagctgc ctgccatgga gctgatattc ctgctgttgg 360  
 gttattccag tgaccagac 379

<210> 152  
 <211> 379  
 <212> DNA  
 <213> Homo sapiens

<400> 152  
 ccctttccaa ggggtagtcc actgaatttg agctgcctaa aaatgggtctt ttatctttat 60  
 gtacagaaaa cacatcacia aattcattat aaaatgtcac ttactgctcc atgctgggga 120  
 aagccatgtc cttctgggac tagagtctgc acatttaact atgggtggtg ttgtgttttg 180  
 tgcttagatg gtccctatca ttgccagta tggagatgtg ttggtgagaa atctgaggcg 240  
 ggaagcagag acaggcaagc ctgtcacctt gaaagagtaa gtagaagcgc agccatgggg 300  
 ttctgagctg tcatgaaccc ctccagcggc ctgccatgga gctgatattc ctgctgttgg 360  
 gttattccag tgaccagac 379

<210> 153  
 <211> 431  
 <212> DNA  
 <213> Homo sapiens

<400> 153  
 cccagtgtac ctctgaattg cttttctatt cttttccctt agggatttga gggcttcact 60  
 tagatttctc ttcattctaaa ctgtgatgcc ctacattgat ctgatttacc taaaatgtct 120  
 ttctctctct ttcagctctg tccgatctgg agctcgtggc ccaatcaatt atctttattt 180  
 ttgctggcta tgaaaccacg agcagtgttc tctccttcat tatgtatgaa ctggccactc 240  
 accctgatgt ccagcagaaa ctgcaggagg aaattgatgc agttttaccc aataagggtga 300  
 gtggatgata catggagaag gagggaggag gtgaaacctt agcaaaaatg cctcctcacc 360  
 acttcccagg agaattttta taaaaagcat aatcactgat tctttcactg actctatgta 420  
 ggaaggctct g 431

<210> 154  
 <211> 574  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (110) .. (334)

<400> 154  
 cagtatgagt tagtctctgg agctcctaact acttcattag tactgcatgg actgagttaa 60  
 aagttaattc aaaatctcaa tttatccaaa tctgtttcgt tctttccag gca cca ccc 118  
 Ala Pro Pro  
 1

acc tat gat act gtg cta cag atg gag tat ctt gac atg gtg gtg aat 166  
 Thr Tyr Asp Thr Val Leu Gln Met Glu Tyr Leu Asp Met Val Val Asn  
 5 10 15

gaa atg ctc aga tta ttc cca att gct atg aga ctt gag agg gtc tgc 214  
 Glu Met Leu Arg Leu Phe Pro Ile Ala Met Arg Leu Glu Arg Val Cys  
 20 25 30 35

aaa aaa gat gtt gag atc aat ggg atg ttc att ccc aaa ggg gtg gtg 262  
 Lys Lys Asp Val Glu Ile Asn Gly Met Phe Ile Pro Lys Gly Val Val  
 40 45 50

gtg atg att cca agc tat gct ctt cac cgt gac cca aag tac tgg aca 310  
 Val Met Ile Pro Ser Tyr Ala Leu His Arg Asp Pro Lys Tyr Trp Thr  
 55 60 65

gag cct gag aag ttc ctc cct gaa aggtacaagg cccctgggaa gggagccctc 364  
 Glu Pro Glu Lys Phe Leu Pro Glu  
 70 75

cctgaaccag cctgggttcaa gcatattctg cctctcttaa tctacaggac agtcatgtgg 424

ttgtataatt atttgcttgt atttttatat ttagagattt ttttaatcat caaattgatt 484

attgtcacac tttacaaacc atagactaga aaaaagaaaa ctacagtcac ccacaattcc 544

aacaacttac gatgaaggtc atcagttatg

574

<210> 155

<211> 75

<212> PRT

<213> Homo sapiens

<400> 155

Ala	Pro	Pro	Thr	Tyr	Asp	Thr	Val	Leu	Gln	Met	Glu	Tyr	Leu	Asp	Met
1				5				10					15		

Val	Val	Asn	Glu	Met	Leu	Arg	Leu	Phe	Pro	Ile	Ala	Met	Arg	Leu	Glu
		20						25					30		

Arg	Val	Cys	Lys	Lys	Asp	Val	Glu	Ile	Asn	Gly	Met	Phe	Ile	Pro	Lys
		35					40					45			

Gly	Val	Val	Val	Met	Ile	Pro	Ser	Tyr	Ala	Leu	His	Arg	Asp	Pro	Lys
	50					55					60				

Tyr	Trp	Thr	Glu	Pro	Glu	Lys	Phe	Leu	Pro	Glu
65					70				75	

<210> 156

<211> 574

<212> DNA

<213> Homo sapiens

<400> 156

cagtatgagt	tagtctctgg	agctccta	acttcattag	tactgcatgg	actgagttaa	60
aagttaattc	aaaatctcaa	tttatccaaa	tctgtttcgt	tctttccagg	caccacccac	120
ctatgatact	gtgctacaga	tgagagtatc	tgacatgggtg	gtgaatgaaa	cactcagatt	180
attcccaatt	gctatgagac	ttgagagggg	ctgcaaaaaa	gatgttgaga	tcaatgggat	240
gttcattccc	aaaggggtgg	tggtgatgat	tccaagctat	gctcttcacc	gtgacccaaa	300
gtactggaca	gagcctgaga	agttcctccc	tgaaaggtac	aaggccctcg	ggaagggagc	360
cctccctgaa	ccagcctggg	tcaagcatat	tctgcctctc	ttaatctaca	ggacagtcac	420
gtggttgtat	aattatttgc	ttgtattttt	atatttagag	atttttttta	tcatacaatt	480
gattattgtc	acactttaca	aaccatagac	tagaaaaaag	aaaactacag	tcataccaca	540
ttccaacaac	ttacgatgaa	ggatcatcagt	tatg			574

<210> 157

<211> 574

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (110)..(334)

<400> 157

cagtatgagt	tagtctctgg	agctccta	acttcattag	tactgcatgg	actgagttaa	60
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aagttaattc	aaaatctcaa	tttatccaaa	tctgtttcgt	tctttccag	gca	cca	ccc	118
					Ala	Pro	Pro	

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acc tat gat act gtg cta cag atg gag tat ctt gac atg gtg gtg aat 166
Thr Tyr Asp Thr Val Leu Gln Met Glu Tyr Leu Asp Met Val Val Asn
      5              10              15

gaa acg ctc aga tta ttc cca att gct atg aga ttt gag agg gtc tgc 214
Glu Thr Leu Arg Leu Phe Pro Ile Ala Met Arg Phe Glu Arg Val Cys
      20              25              30              35

aaa aaa gat gtt gag atc aat ggg atg ttc att ccc aaa ggg gtg gtg 262
Lys Lys Asp Val Glu Ile Asn Gly Met Phe Ile Pro Lys Gly Val Val
              40              45              50

gtg atg att cca agc tat gct ctt cac cgt gac cca aag tac tgg aca 310
Val Met Ile Pro Ser Tyr Ala Leu His Arg Asp Pro Lys Tyr Trp Thr
              55              60              65

gag cct gag aag ttc ctc cct gaa aggtacaagg cccctgggaa gggagccctc 364
Glu Pro Glu Lys Phe Leu Pro Glu
              70              75

cctgaaccag cctgggttcaa gcatattctg cctctcttaa tctacaggac agtcatgtgg 424

ttgtataatt atttgcttgt atttttatat ttagagattt ttttaatcat caaattgatt 484

attgtcacac tttaaaacc atagactaga aaaaagaaaa ctacagtcac ccacaattcc 544

aacaacttac gatgaaggtc atcagttatg 574

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<210> 158  
 <211> 75  
 <212> PRT  
 <213> Homo sapiens

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<400> 158
Ala Pro Pro Thr Tyr Asp Thr Val Leu Gln Met Glu Tyr Leu Asp Met
  1              5              10              15

Val Val Asn Glu Thr Leu Arg Leu Phe Pro Ile Ala Met Arg Phe Glu
              20              25              30

Arg Val Cys Lys Lys Asp Val Glu Ile Asn Gly Met Phe Ile Pro Lys
              35              40              45

Gly Val Val Val Met Ile Pro Ser Tyr Ala Leu His Arg Asp Pro Lys
              50              55              60

Tyr Trp Thr Glu Pro Glu Lys Phe Leu Pro Glu
              65              70              75

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<210> 159  
 <211> 574  
 <212> DNA  
 <213> Homo sapiens



&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (110) .. (334)

&lt;400&gt; 159

cagtatgagt tagtctctg agctcctaact atttcattag tactgcatgg actgaggttaa 60

aagttaattc aaaatctcaa tttatccaaa tctgtttcgt tctttccag gca cca ccc 118  
 Ala Pro Pro  
 1

acc tat gat act gtg cta cag atg gag tat ctt gac atg gtg gtg aat 166  
 Thr Tyr Asp Thr Val Leu Gln Met Glu Tyr Leu Asp Met Val Val Asn  
 5 10 15

gaa acg ctc aga tta ttc cca att gct atg aga ctt gag agg gtc tgc 214  
 Glu Thr Leu Arg Leu Phe Pro Ile Ala Met Arg Leu Glu Arg Val Cys  
 20 25 30 35

aaa aaa gat gtt gag atc aat ggg atg ttc att ccc aaa ggg gtg gtg 262  
 Lys Lys Asp Val Glu Ile Asn Gly Met Phe Ile Pro Lys Gly Val Val  
 40 45 50

gtg atg att cca agc tat gct ctt cac cgt gac cca aag tac tgg aca 310  
 Val Met Ile Pro Ser Tyr Ala Leu His Arg Asp Pro Lys Tyr Trp Thr  
 55 60 65

gag cct gag aag ttc ctc ctt gaa aggtacaagg cccctgggaa gggagccctc 364  
 Glu Pro Glu Lys Phe Leu Leu Glu  
 70 75

cctgaaccag cctgggttcaa gcatattctg cctctcttaa tctacaggac agtcatgtgg 424

ttgtataatt atttgcttgt atttttatat ttagagattt ttttaatcat caaattgatt 484

attgtcacac tttaaaacc atagactaga aaaaagaaaa ctacagtcac ccacaattcc 544

aacaacttac gatgaaggtc atcagttatg 574

&lt;210&gt; 160

&lt;211&gt; 75

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 160

Ala Pro Pro Thr Tyr Asp Thr Val Leu Gln Met Glu Tyr Leu Asp Met  
 1 5 10 15

Val Val Asn Glu Thr Leu Arg Leu Phe Pro Ile Ala Met Arg Leu Glu  
 20 25 30

Arg Val Cys Lys Lys Asp Val Glu Ile Asn Gly Met Phe Ile Pro Lys  
 35 40 45

Gly Val Val Val Met Ile Pro Ser Tyr Ala Leu His Arg Asp Pro Lys  
 50 55 60

Tyr Trp Thr Glu Pro Glu Lys Phe Leu Leu Glu

65

70

75

<210> 161  
 <211> 574  
 <212> DNA  
 <213> Homo sapiens

<400> 161  
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 aagttaattc aaaatctcaa tttatccaaa tctgtttcgt tctttccagg caccacccac 120  
 ctatgatact gtgctacaga tggagtatct tgacatgggt gtgaatgaaa cgctcagatt 180  
 attcccaatt gctatgagac ttgagagggt ctgcaaaaaa gatgttgaga tcaatgggat 240  
 gttcattccc aaaggggtgg tggatgatgat tccaagctat gctcttcacc gtgacccaaa 300  
 gtactggaca gagcctgaga agttcctccc tgaaagggtac aagggtccctg ggaaggggagc 360  
 cctccctgaa ccagcctggg tcaagcatat tctgcctctc ttaatctaca ggacagtcac 420  
 gtggttgtat aattatttgc ttgtattttt atatttagag atttttttta tcatcaaatt 480  
 gattattgtc acactttaca aaccatagac tagaaaaaag aaaactacag tcatccacaa 540  
 ttccaacaac ttacgatgaa ggtcatcagt tatg 574

<210> 162  
 <211> 411  
 <212> DNA  
 <213> Homo sapiens

<400> 162  
 cctgtgtact actagttgag ggggtggcccc taagtaagaa accctaacat gtaactctta 60  
 ggggtattat gtcattaact ttttaaaaat ctaccaatgt ggaaccagat tcagcaagaa 120  
 gaacaaggac aacatagatc cttacatata cacacccttt ggaagtggac ccagaaactg 180  
 cattggcatg aggtttgctc tcatgaacat gaaacttgct ctaatcagag tccttcagaa 240  
 cttctccttc aaaccttgta aagaaacaca ggtagtcaa ttttctataa aaataatgtt 300  
 gtattaataa ttcttttaac tgagtgggtc gtatttttta aaaagaatat gcttgtttta 360  
 tcttttacta atttgttctc tgggcccagg aatcaattag gcccatctgt g 411

<210> 163  
 <211> 288  
 <212> DNA  
 <213> Homo sapiens

<400> 163  
 ggagtgtctc actcactttg atgctatact ttctactttt gtttatttta tgcttctcaa 60  
 tatgcttggt taactgttgc agatccccct gaaattaagc ttaggaggac ttcttcaacc 120  
 agaaaaaccc gttgttctaa aggttgagtc aagggatggc actgtaagtg gagcctgaat 180  
 tttcctaagg acttctgctt tgccttctca gaaatctgtg cctgagaaca ccagagacct 240  
 caaattactt tgtgaataga actctgaaat gaagatgggc ttcacca 288

<210> 164  
 <211> 288  
 <212> DNA  
 <213> Homo sapiens

<400> 164  
 ggagtgtctc actcactttg atgctatact ttctactttt gtttatttta tgcttctcaa 60  
 tatgcttggt taactgttgc agatccccct gaaattaagc ttaggaggac ttcttcaacc 120  
 agaaaaaccc gttgttctaa aggttgagtc aagggatggc accgtaagtg gagcctgaat 180

tttcctaagg acttcggctt tgctcttcaa gaaatctgtg cctgagaaca ccagagacct 240  
 caaattactt tgtgaataga actctgaaat gaagatgggc ttcattcca 288

<210> 165  
 <211> 236  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> r=g or a

<400> 165  
 ctacaacccat ggagacctcc acaactgatg taggacaaaa tgtttctgct ttgaactcta 60  
 gccttttggg ccagtgggat ttatgaaaag tgccatctct atagctgagg atgaagaatg 120  
 gaagagatta cratcattgc tgtctccaac cttcaccagt ggaaaactca aggaggatg 180  
 aaaataacat gagttttaat aagaaactta aagaatgaat ctgggtgggga caggta 236

<210> 166  
 <211> 379  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> r=g or a, y=t or c, s=g or c, k=g or t

<400> 166  
 ccctttccaa ggggtagtcc actgaatttg agctgcctaa aaatgggtctt ttatctttat 60  
 gtacagaaaa cacatcacia aattcattat aaaatgtcac ttactgctcc atgctgggga 120  
 aagccatgtc cttctgggac tagagtctgc acatttaact atgggtgggtg ttgtgttttg 180  
 tgcttagatg gtccttatca ttgccagta tggagatgtg ttggtgagaa atctgaggcg 240  
 ggaagcagag acaggcaagc ctrtcacctt gaaasagtaa gtagaagcgc agcyatgggk 300  
 ttctgagctg tcatgaaccc ctccagckgc ctgccatgga gctgatattc ctgctgtttg 360  
 gttattccag tgaccagac 379

<210> 167  
 <211> 431  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> r=g or a

<400> 167  
 cccagtgtac ctctgaattg cttttctatt cttttccctt agggatttga gggcttcact 60  
 tagattttctc ttcattctaaa ctgtgatgcc ctacattgat ctgatttacc taaaatgtct 120  
 ttctctctct ttcagctctg tccgatctgg agctcgtggc ccaatcaatt atctttattt 180  
 ttgctgggta tgaaaccacg agcagtgttc tctccttcat tatgtatgaa ctggccactc 240  
 accctgatgt ccagcagaaa ctgcaggagg aaattgatgc agttttaccc aataagggtga 300  
 gtggatgrta catggagaag gagggaggag gtgaaacctt agcaaaaatg cctcctcacc 360  
 acttcccagg agaattttta taaaagcat aatcactgat tctttcactg actctatgta 420  
 ggaaggctct g 431

<210> 168  
 <211> 574  
 <212> DNA

<213> Homo sapiens

<220>

<223> y=t or c, r=g or a

<400> 168

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cagtatgagt tagtctctgg agctcctaact acttcattag tactgcatgg actgagttaa 60
aagttaattc aaaatctcaa tttatccaaa tctgtttcgt tctttccagg caccaccac 120
ctatgatact gtgctacaga tggagtatct tgacatggtg gtgaatgaaa yrctcagatt 180
attcccaatt gctatgagay ttgagagggg ctgcaaaaaa gatgttgaga tcaatgggat 240
gttcattccc aaaggggtgg tggatgatgat tccaagctat gctcttcacc gtgacccaaa 300
gtactggaca gagcctgaga agttcctccy tgaaagggtac aaggyccctg ggaagggagc 360
cctccctgaa ccagcctggg tcaagcatat tctgcctctc ttaatctaca ggacagtcac 420
gtggttgat aattatttgc ttgtattttt atatttagag atttttttaa tcatcaaatt 480
gattattgtc acactttaca aaccatagac tagaaaaaag aaaactacag tcatccacaa 540
ttccaacaac ttacgatgaa ggtcatcagt tatg 574
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<210> 169

<211> 411

<212> DNA

<213> Homo sapiens

<220>

<223> y=t or c

<400> 169

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cctgtgtact actagttgag ggggtggcccc taagtaagaa accctaacat gtaactctta 60
gggggtattat gtcattaact ttttaaaaat ctaccaaygt ggaaccagat tcagcaagaa 120
gaacaaggac aacatagatc cttacatata cacacccttt ggaagtggac ccagaaactg 180
cattggcatg aggtttgctc tcatgaacat gaaacttgct ctaatcagag tccttcagaa 240
cttctccttc aaaccttgta aagaaacaca ggtagtcaa tttctataa aaataatgtt 300
gtattaataa ttcttttaac tgagtggctc gtatttttta aaaagaatat gcttggttaa 360
tcttttacta atttgttctc tgggccaag aatcaattag gcccatctgt g 411
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<210> 170

<211> 288

<212> DNA

<213> Homo sapiens

<220>

<223> y=t or c, k=g or t

<400> 170

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ggagtgtctc actcactttg atgctatact ttctactttt gtttatttaa tgcttctcaa 60
tatgcttggt taactgttgc agatccccct gaaattaagc ttaggaggac ttcttcaacc 120
agaaaaaccc gttgttctaa aggttgagtc aagggtggc acygtagtgt gagcctgaat 180
tttcttaagg acttckgctt tgctcttcaa gaaatctgtg cctgagaaca ccagagacct 240
caaattactt tgtgaataga actctgaaat gaagatgggc ttcatcca 288
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<210> 171

<211> 30

<212> DNA

<213> Homo sapiens

<220>

<221> CDS  
<222> (1)..(30)

<400> 171  
cct gtc acc ttg aaa cac gtc ttt ggg gcc  
Pro Val Thr Leu Lys His Val Phe Gly Ala  
1 5 10

30

<210> 172  
<211> 10  
<212> PRT  
<213> Homo sapiens

<400> 172  
Pro Val Thr Leu Lys His Val Phe Gly Ala  
1 5 10